



1971-03

# Naval Postgraduate School Graduation Exercises / Class of March 1971

Naval Postgraduate School (U.S.)

Monterey, California. Naval Postgraduate School

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U.S. NAVAL POSTGRADUATE SCHOOL MONTEREY, CALIFORNIA

# COMMENCEMENT EXERCISES

FRIDAY AFTERNOON, 26 MARCH 1971, AT FOUR O'CLOCK

Superintendent  
ROBERT W. McNITT  
Rear Admiral, United States Navy

Provost  
MILTON U. CLAUSER  
Doctor of Philosophy

Deputy Superintendent  
for Programs  
FLETCHER H. BURNHAM  
Captain, United States Navy

Deputy Superintendent  
for Logistics  
ROBERT Y. GAINES  
Captain, United States Navy

Dean of Programs  
W. F. KOEHLER  
Doctor of Philosophy

## MISSION

"To conduct and direct the Advanced Education of commissioned officers, and to provide such other technical and professional instruction as may be prescribed to meet the needs of the Naval Service; and in support of the foregoing, to foster and encourage a program of research in order to sustain academic excellence "

# The Program

## PROCESSIONAL

Professor A. BOYD MEWBORN . . . . .	Grand Marshal
Professor MELVIN F. REYNOLDS . . . . .	Marshal
Professor ALFRED W. M. COOPER . . . . .	Marshal
Professor RUSSEL H. STOLFI . . . . .	Marshal
Lieutenant Colonel JOHN H. SMITH, U. S. Marine Corps . . . . .	Marshal

## NATIONAL ANTHEM

## INVOCATION

Captain ERNEST R. LINEBERGER, CHC, U. S. Navy

## INTRODUCTION OF SPEAKER

Rear Admiral ROBERT W. McNITT, U. S. Navy

## ADDRESS TO GRADUATES

Rear Admiral FRANCIS J. FITZPATRICK, U. S. Navy  
Assistant Chief of Naval Operations (Communications and Cryptology)  
and Commander, Naval Communications Command

## PRESENTATION OF NAVY LEAGUE OF MONTEREY AWARD FOR ACADEMIC ACHIEVEMENT

## PRESENTATION OF CNO COMMUNICATIONS AWARDS

## PRESENTATION OF NAVAL SHIP SYSTEMS COMMAND AWARD

## ANNOUNCEMENT OF DIPLOMAS OF COMPLETION OF CURRICULA

ANNOUNCEMENT OF DEGREES . . . Rear Admiral Robert W. McNitt, U.S. Navy  
Provost MILTON U. CLAUSER

### For the Degree of:

### Presentation of Candidates by Department Chairman:

Bachelor of Arts with	
Major in Government/International Relations . . . . .	Professor BURTON M. L. SMITH
Bachelor of Science in Aeronautical Engineering . . . . .	Professor RICHARD W. BELL
Bachelor of Science in Chemistry . . . . .	Professor CHARLES F. ROWELL
Bachelor of Science in Computer Science . . . . .	Dean BROOKS J. LOCKHART
Bachelor of Science in Engineering Science . . . . .	Dean BROOKS J. LOCKHART
Bachelor of Science in Electrical Engineering . . . . .	Professor SYDNEY R. PARKER
Bachelor of Science in Mechanical Engineering . . . . .	Professor T. SARPKAYA
Bachelor of Science in Meteorology . . . . .	Professor GEORGE J. HALTINER
Bachelor of Science in Operations Research . . . . .	Professor JACK R. BORSTING
Master of Science in Aeronautical Engineering . . . . .	Professor R. W. BELL
Master of Science in Computer Science . . . . .	Dean BROOKS J. LOCKHART
Master of Science in Electrical Engineering . . . . .	Professor SYDNEY R. PARKER
Master of Science in Meteorology . . . . .	Professor GEORGE J. HALTINER
Master of Science in Oceanography . . . . .	Professor DALE F. LEIPPER
Master of Science in Management . . . . .	Professor JACK R. BORSTING
Master of Science in Operations Research . . . . .	Professor JACK R. BORSTING
Master of Science in Physics . . . . .	Professor O. B. WILSON, Jr.
Electrical Engineer . . . . .	Professor SYDNEY R. PARKER
Doctor of Philosophy . . . . .	Provost MILTON U. CLAUSER
	Professor T. SARPKAYA

## BENEDICTION

Lieutenant Commander JAMES W. ECKLES, U. S. Navy

## RECESSIONAL



## PLATFORM PARTY

### First Row (left to right)

Provost Milton U. Clauser  
Provost, Naval Postgraduate School

Consul Bernabe de Guzman, Jr.  
Republic of the Philippines

Major General Philip B. Davidson  
U. S. Army

Major General George S. Bowman, Jr.  
U. S. Marine Corps

Rear Admiral Robert W. McNitt, U. S. Navy  
Superintendent, Naval Postgraduate School

Rear Admiral Francis J. Fitzpatrick, U. S. Navy  
Assistant Chief of Naval Operations  
(Communications and Cryptology)

Mr. Loran A. List, President  
Monterey Peninsula Council of the Navy League

Captain Fletcher H. Burnham, U. S. Navy  
Deputy Superintendent for Programs  
Naval Postgraduate School

Captain Ernest P. Lineberger, CHC, U. S. Navy  
Chaplain, Naval Postgraduate School

Lieutenant Commander James W. Eckles, CHC  
U. S. Navy  
Chaplain, Naval Postgraduate School

### Second Row

Professor O. B. Wilson, Jr.  
Department of Physics

Professor Dale F. Leipper  
Department of Oceanography

Professor Jack R. Borsting  
Departments of Operations Analysis, Business  
Administration and Economics

Professor George J. Haltiner  
Department of Meteorology

Professor T. Sarpkaya  
Department of Mechanical Engineering

Professor Sydney R. Parker  
Department of Electrical Engineering

Dean Brooks J. Lockhart  
Dean of Curricula

Professor Charles F. Rowell  
Department of Material Science and Chemistry

Professor Richard W. Bell  
Department of Aeronautics

Professor Burton M. L. Smith  
Department of Government and Humanities

Recipient of the Navy League of Monterey Award  
For Academic Achievement

Lieutenant Commander STEVEN R. BRIGGS, U. S. Navy

Recipient of the CNO Communications Award

Lieutenant CELSO E. GIRONELLA, Philippine Navy

Recipient of the CNO Communications Certificate

Lieutenant Commander WELLS B. DOTY, U. S. Navy

Recipients of the Naval Ship Systems Command Award  
in Naval Engineering

Lieutenant Commander DAVID T. COWDRILL, U. S. Navy

Lieutenant Commander RAMON R. OWENS, U. S. Navy

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Naval Postgraduate School Curricular Officers

Commander JOHN D. HARTLEY, U. S. Navy  
Operations Research/Systems Analysis

Commander GEORGE W. EAST, U. S. Navy  
Aeronautical Engineering

Commander JOE M. JAMES, U. S. Navy  
Electronics and Communications Engineering

Commander GEORGE C. SUP, U. S. Navy  
Ordnance Systems Engineering

Commander JOHN R. WALES, U. S. Navy  
Naval Engineering

Commander JAMES J. DAGDIGIAN, U. S. Navy  
Environmental Sciences

Commander EDWARD I. McQUISTON, U. S. Navy  
Management/Computer Science

Lieutenant Commander PHILLIP J. O'CONNELL, U. S. Navy  
Engineering Science

Commander LLOYD T. ZUEHLKE, U. S. Navy  
Baccalaureate Programs

# The Graduates

Those officers whose names are preceded by a ★ are being given their degrees in absentia

## Diploma of Completion

### Engineering Science

★ROBERT E. BEISEL, LCDR, USNR  
BONNIE J. DICKSON, LT, USN

★JOHN E. HAMMACK, LCDR, USN  
★GEORGE C. WOMBLE, LT, USN

### Management

★MANOUCHEHR BOROUMAND, LCDR,  
Iranian Navy

★HERBERT V. BRYANT, LCDR, USN  
ARTHUR E. WHITE, LT, USN

### Oceanography

JOHN M. BALDWIN, III, LCDR, USN

★HAROLD A. WALTON, LCDR, USN

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## Bachelor of Arts with Major in Government/International Relations

★EDWARD K. ANDREWS, LT, USN  
MERYL A. BELTO, CDR, USN  
EDWARD R. GILKSON, CDR, USN  
ROBERT J. GILLES, LCDR, USNR  
★JOSEPH W. HOOD, JR., CDR, USN

★GEORGE MILLER, CDR, USN  
★ROBERT K. REILLY, LCDR, USN  
HAYWOOD G. SPROUSE, LCDR, USN  
FLOYD E. SYKES, CDR, USN  
★WALTER A. TOEHLKE, CDR, USN

## Bachelor of Science in Aeronautical Engineering

JAMES B. JACKSON, LCDR, USN

JOHN C. LINDAHL, LT, USN

## Bachelor of Science with Major in Business Administration

★JOHN H. PIERCE, LCDR, USN

## Bachelor of Science in Chemistry

ROBERT P. FUSCALDO, LCDR, USN

## Bachelor of Science with Major in Computer Science

MAURICE A. HOLDER, MAJ, USMC

JACK M. MOORE, CAPT, USMC

## Bachelor of Science in Engineering Science

★RICHARD C. ALLEN, LCDR, USN  
★JOSEPH W. CASHIN, JR., LCDR, USN

WILLIAM W. KOLB, LCDR, USN

## Bachelor of Science in Electrical Engineering

ALBERT H. MITCHELL, JR., LT, USN



### Bachelor of Science in Mechanical Engineering

EDGAR R. SPICKER, LTJG, Colombian Navy

### Bachelor of Science in Meteorology

GEORGE W. GRAVES, JR., LT, USN

TIMOTHY W. TEDFORD, LT, USN

### Bachelor of Science in Operations Research

JOHN E. CRANFORD, LT, USN

\*JEROME E. McCUE, LCDR, USN

DAVID C. EMERSON, LT, USN

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### Master of Science in Aeronautical Engineering

DONALD W. AVERY, JR., LT, USN

ROBERT B. NEWELL, JR., LT, USN

STEVEN R. BRIGGS, LCDR, USN

ALEXANDER M. PHILLIPS, LT, USN

JOHN R. KENNEDY, LCDR, USN

WILLIAM L. VINCENT, LCDR, USN

MICHAEL J. McCARTHY, LT, USN

CURTIS J. WINTERS, LT, USN

### Master of Science in Computer Science

CHARLES D. VINCENT, LCDR, USN

### Master of Science in Computer Systems Management

\*WILLIAM H. TIMBY, LCDR, USN

### Master of Science in Electrical Engineering

DAVID T. COWDRILL, LCDR, USN

RAMON R. OWENS, LCDR, USN

CELSO E. GIRONELLA, LT, Philippine Navy

FELIX PFENDTNER, LCDR, Federal German Navy

HARLEY J. HOLLIDAY, LT, USN

DAVID O. SIEBERNS, LT, USN

### Master of Science in Meteorology

LEO H. CRAIGLOW, JR., LCDR, USN

ROBERT F. RIORDAN, LT, USN

ALFRED A. THRESHER II, LCDR, USN

### Master of Science in Oceanography

ROBERT E. AMOS, LT, USN

ROBERT D. JONES, LT, USN

RICHARD G. ANDERSON, LCDR, USN

~~LENNIS L. LAMMERS, LCDR, USN~~

~~JOHN M. BALDWIN III, LCDR, USN~~

SHELDON M. LAZANOFF

CONRAD L. BELAND, LT, USN

RALPH R. MILLER, III, LCDR, USN

JOHN S. BERG, LCDR, USN

JOHN C. PETERSON, LT, USN

RONALD J. CALHOUN, LCDR, USN

HENRY F. SCHULTZ, LT, USN

ROLAND A. GARCIA, LT, USNR

JAMES C. SINGLER, LT, USN

THOMAS E. GILL II, LCDR, USN

ELROY A. SOLURI, LCDR, USN

BOBBY V. HASSLER, LT, USN

HOWARD S. STODDARD, LCDR, USN

WILLIAM P. HUNTER, LCDR, USN



### Master of Science in Management

ERIC B. ARDELL, LT, USN

WILTON C. BOBO, JR., LT, USN

\*HERBERT V. BRYANT, LCDR, USN

WELLS B. DOTY, LCDR, USN

GEORGE F. FANNING, LCDR, USN

BILLY D. GOODGAME, LT, USN

DONALD R. LARSON, LCDR, USN

VERNON D. McDANIEL, LCDR, USN

DAVID B. A. MOORE, LT, USN

\*LARS H. OKESON, LT, USN

RONALD E. RUYS, LT, USN

SERGE A. YONOV, LCDR, USN

### Master of Science in Operations Research

PATRICK A. BOWMAN, MAJ, USA

JOHN A. COVENTRY, CPT, USA

\*ROBERT V. DENNIS, LTC, USA

\*GARY A. GREEN, CPT, USA

GARRETT S. HALL, MAJ, USA

BRUCE B. HALSTEAD, MAJ, USA

JAN V. HARVEY, MAJ, USA

ALBERT B. HUTTON, JR., CPT, USA

ROBERT R. JORGENSEN, SR., LTC, USA

RICHARD S. MILLER, MAJ, USA

RICHARD S. MITCHELL, CPT, USA

GEORGE L. MOSES, MAJ, USA

\*DAVID S. PRICE, MAJ, USA

GEORGE M. SCHERRER, JR., CPT, USA

MICHAEL M. SCHNEIDER, MAJ, USA

\*GEORGE E. WROCKLOFF III, MAJ, USA

PAUL T. ZMUIDA, MAJ, USA

THORNTON BOYD, CAPT, USMC

WALTER J. BREEDE, III, CAPT, USMC

JAMES C. BROWN, CAPT, USMC

MICHAEL J. HANLEY, MAJ, USMC

WILLIAM A. HESSER, CAPT, USMC

ROBERT S. HOLMAN, MAJ, USMC

RAYMOND C. LAFSER, LCOL, USMC

JAMES F. LLOYD, JR., CAPT, USMC

GLENN W. RUSSELL, JR., CAPT, USMC

KENNETH C. SHUMATE, CAPT, USMC

PAUL J. SMITH, JR., MAJ, USMC

ROBERT C. SPRINGER, CAPT, USMC

BRIAN T. WRIGHT, CAPT, USMC

DAVID W. ANDERSON, LT, USN

BRIAN K. BRYANS, LCDR, USN

HUGH E. CARROLL II, LT, USN

AUSTIN E. CHAPMAN, LT, USN

ARTHUR D. CLARK, LT, USN

DAVID M. CRISTE, LCDR, USN

RICHARD C. CURLEY, LT, USN

RODGER N. ELKINS, LT, USN

GERARD R. EVANS, LT, USN

JOHN S. FOARD, JR., LT, USN

FRANCIS D. GRAY, LT, USN

CHARLES D. GRIFFIN, JR., LCDR, USN

RICHARD A. HOFERKAMP, LT, USN

\*DAVID W. HOFFMAN, LCDR, USN

ROBERT E. HOPE, LT, USN

JAMES E. HUTCHESON, JR., LT, USN

CARL F. LOGAN, LT, USN

ROBERT A. MAIER, LCDR, USN

JAY G. McDONALD, LT, USN

GEORGE M. MILLER III, LT, USN

LEANDER M. PEMBERTON, LT, USN

JOSEPH G. PROCOPIO, LCDR, USN

JOHN J. REED, LT, USN

WILLIAM P. SARGENT, LT, USN

NORMAN J. SHACKELTON, LT, USN

MICHAEL E. SULLIVAN, LCDR, USN

BARRY V. TIERNAN, LCDR, USN

CARMINE TORTORA, LCDR, USN

MICHAEL C. WATERS, LT, USN

### Master of Science in Physics

WINFRED D. VALLANCE, LT, USN

EDGAR R

## Electrical Engineer

DAVID T. COWDRILL, LCDR, USN

RAMON R. OWENS, LCDR, USN

CELSO E. GIRONELLA, LT, Philippine Navy

FELIX PFENDTNER, LCDR, Federal German Navy

GEORGE

HARLEY J. HOLLIDAY, LT, USN

## Doctor of Philosophy

JOHN E

PETER G. RAINEY, LT, USN

DAVID

DONALD

STEVEN

JOHN

MICHAEL

CHARLES

\*WILLIAM

DAVID

CELSO

HARLEY

LEO

ALFRED

ROBERT

RICHARD

JOHN

COLIN

JOHN

ROBERT

ROBERT

THOMAS

BOB

WILLIAM

## ACADEMIC DRESS

The cap and gown and colorful hood so prominent in commencement ceremonies resemble to some extent articles of dress worn by church and university dignitaries in the Middle Ages. The cap and gown indicate that the wearer is a member of a university or college. The hood shows the degree the wearer holds.

The gown for the bachelor's degree has pointed sleeves and is designed to be worn closed. The master's gown has closed sleeves, square at the end, the arms coming through a slit at the elbow; it may be worn open or closed. The doctor's gown has bell-shaped sleeves and may be worn open or closed. Down the front the doctor's gown has a facing of velvet and three bars of the same material on each sleeve. The facing and bars may be either black or the color distinctive of the subject to which the degree pertains. The cap is worn for all degrees; the doctor may wear a golden tassel.

Hoods are normally black with a colorful lining rolled outward. Bachelor's hoods are three feet long, master's three and one half feet, and doctor's four feet.

For all academic purposes, including trimmings for the doctor's gown, edgings of hoods, and tassels of caps, the colors associated with the different subjects are as follows:

Agriculture . . . . .	Maize	Library Science . . . . .	Lemon
Arts, Letters, Humanities . . . . .	White	Music . . . . .	Pink
Business, Commerce . . . . .	Drab	Pharmacy . . . . .	Olive Green
Education . . . . .	Light Blue	Philosophy . . . . .	Dark Blue
Engineering . . . . .	Orange	Physical Education . . . . .	Sage Green
Forestry . . . . .	Russet	Science . . . . .	Golden Yellow
Home Economics . . . . .	Maroon	Theology . . . . .	Scarlet
Law . . . . .	Purple	Veterinary Science . . . . .	Gray

The silk or satin lining of the hood is the color or colors of the university or college which conferred the degree. Some have a slash or chevron of contrasting color. For example:

University Granting Degree	Lining	Slash or Chevron
University of Wisconsin . . . . .	Bright Red	
University of Minnesota . . . . .	Old Gold . . . . .	Maroon
Yale University . . . . .	Blue	
University of California . . . . .	Gold . . . . .	Yale Blue
University of Washington . . . . .	Purple Above Gold	
University of Oregon . . . . .	Lemon Yellow . . . . .	Dark Green
New York University . . . . .	Violet	
Stanford University . . . . .	Cardinal	
Columbia University . . . . .	Light Blue	White
University of Michigan . . . . .	Maize . . . . .	Blue
University of Texas . . . . .	White Above Orange . . . . .	Burnt Orange
Duke University . . . . .	Royal Blue . . . . .	White
Cornel University . . . . .	Cardinal . . . . .	Two White
Harvard University . . . . .	Crimson	
Michigan State University . . . . .	Green . . . . .	White
Iowa State University . . . . .	Gold Above Cardinal	
State University of Iowa . . . . .	Old Gold	
Oregon State University . . . . .	Burnt Orange	
Lewis and Clark College . . . . .	Princeton Orange . . . . .	Black, Orange
University of Denver . . . . .	Cardinal . . . . .	Gold

The Naval Postgraduate School hood has a satin lining of dark blue with a gold chevron.



## THE NAVAL POSTGRADUATE SCHOOL

The United States Naval Postgraduate School had a modest beginning at the Naval Academy at Annapolis in 1909, at which time the first class of ten officers enrolled in the School of Marine Engineering. In 1912, the School was designated the Postgraduate Department of the Naval Academy, and the scope of its engineering curricula was broadened to include Ordnance, Naval Construction and Civil Engineering.

After a suspension of operations during World War I, the Postgraduate Department resumed operations in 1919; two years later it was officially designated the "United States Naval Postgraduate School." A further extension of its curricula and the growth of its enrollment took place in the years between the two World Wars.

In 1927, the General Line Course was started within the Postgraduate School to acquaint junior line officers with modern developments taking place in the Navy and to broaden their professional knowledge by means of integrated courses in naval science.

World War II caused an increase in enrollment in the Engineering curricula from about 125 to over 600 and a tremendous expansion of activity in contrast to the complete suspension of operations during World War I. After hostilities ceased in 1945, a program was initiated to relocate the Postgraduate School and improve its professional status. Between 1945 and 1948, legislation was passed establishing the School as a separate activity under its own Superintendent; creating the office of Academic Dean; granting the Superintendent the right to award Bachelor's, Master's and Doctor's degrees; authorizing the re-establishment at Monterey, California, and purchasing the Del Monte site. The move to Monterey was commenced in 1948 and completed in 1951.

In 1956, the Navy Management School was established as a component of the Postgraduate School. Its mission was to provide graduate education for Naval officers in the theories, philosophies and application of scientific methods of management specifically oriented to the Navy in order to advance efficiency and economy of operation afloat and ashore. In August 1960, the Management School curriculum was lengthened from a five- to a ten-month course leading to a Master's degree for those who could meet the requirements for such a degree.

In 1958, the General Line School was redesignated as the General Line and Naval Science School and a Bachelor of Science curriculum was offered to meet the educational and career requirements of selected officers who did not have baccalaureate degrees. Further developments in the undergraduate program resulted in recognition of the need for a Bachelor of Arts curriculum, which was subsequently inaugurated in the General Line and Naval Science School in August 1961.

A major internal reorganization was approved by the Chief of Naval Personnel and became effective on 3 August 1962. The three component schools were consolidated into a single unified Postgraduate School, with academic operations under the direction of a Deputy Superintendent for Programs (military) and a Dean of Programs (civilian). The reorganization in no way changes the curricula of courses offered, but achieves unity of policy and gives emphasis to the educational programs required of the Navy.